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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,189	08/17/2006	Nozomu Tanihara	KITO13.001APC	3509

20995 7590 04/16/2009
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EXAMINER

GREENE, JASON M

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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04/16/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No. 10/590,189	Applicant(s) TANIHARA, NOZOMU	
	Examiner Jason M. Greene	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/17/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.84(u)(2) because the view numbers (e.g. Fig. 1) are not larger than the numbers used as reference characters. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamamura et al. (US 5,154,832).

Yamamura et al. discloses a gas separation membrane module comprising a plurality of laminates, each of the laminates comprising a permeate-side spacer (5) for forming a permeate gas channel communicated with a hollow section in a core tube (2) for collecting and discharging a permeate gas and two flat-film gas separation membranes (3) sandwiching the spacer, wherein the laminates are spirally wound around the core tubes together with feed side spacers (4) for forming a feed channel capable of carrying a feed gas, such that the laminates, and the feed-side spacers are alternately superimposed, wherein a thickness ratio of the permeate side spacer to the feed side spacer is 1:2 (0.3mm:0.6mm, see Example 1 at col. 10), and whereby the module is capable of separating and recovering oxygen-rich air from a hollow section by vacuuming the hollow section while feeding the air to a feed gas channel in Figs. 1-9 and col. 5, line 12 to col. 11, line 56.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamura et al. (US 5,154,832).

Yamamura et al. discloses an apparatus for recovering and separating oxygen-rich air comprising a gas separation membrane module where a laminate comprising a permeate-side spacer (5) for forming a permeate gas channel communicated with a hollow section in a core tube (2) for collecting and discharging a permeate gas and two flat-film gas separation membranes (3) sandwiching the spacer, and a feed-side spacer for forming a feed channel capable of carrying feed gas, are spirally wound around the core tube such that the laminate and the feed side spacer are alternately superimposed, feed means (31) capable of feeding air into the feed channel, and vacuuming means (34) whereby the hollow section of the core tube is vacuumed to 85 torr (11.3 kPaA) to separate and recover oxygen-rich air from the hollow section of the core tube, wherein the gas separation membrane has a plurality of the laminates, and wherein a thickness ratio of the permeate side spacer to the feed side spacer is 1:2 (0.3mm:0.6mm, see Example 1 at col. 10) in Figs. 1-9 and col. 5, line 12 to col. 11, line 56.

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While Yamamura et al. does not teach the claimed maximum feed-air flow rate and the maximum static pressure divided by an effective membrane area, both of these values could be selected as a matter of design choice through routine experimentation by adjusting the size of the membrane module depending on the particular application.

6. Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemser et al. (US 6,126,721) in view of Yamamura et al. (US 5,154,832).

Nemser et al. discloses a method for separating and recovering oxygen-rich air from the air comprising providing a spiral wound membrane module (see col. 5, lines 57-60), and using a vacuum pump (6) to draw a vacuum of 67.5 KpaA (see col. 9, lines 19-26) on the permeate side to separate and recover oxygen-rich air in Figs. 1-5 and col. 3, line 45 to col. 10, line 57.

Nemser et al. does not teach the gas separation membrane module having the recited structure, but, as noted above, Yamamura et al. does teach such a structure for separating and recovering oxygen-rich gas in Figs. 1-9 and col. 5, line 12 to col. 11, line 56.

While Yamamura et al. is directed to deoxygenation of water, one of ordinary skill in the art would have recognized that it could also be used to separate oxygen from atmospheric air since the separation membrane is oxygen selective. Additionally, one of ordinary skill would have recognized that the specific separation membrane materials taught by Nemser et al. could also be used if higher oxygen/nitrogen selectivity was desired.

While Yamamura et al. does not teach the claimed maximum feed-air flow rate and the maximum static pressure divided by an effective membrane area, both of these values could be selected as a matter of design choice through routine experimentation by adjusting the size of the membrane module depending on the particular application.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Avery et al., Ootani et al., Krasberg and Spadaccini et al. references disclose similar systems.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1797

/Jason M. Greene/
4/13/09

jmg
April 13, 2009